

S/N 10/048,040

product from BuBr and PhBr and Na in hot C<sub>6</sub>H<sub>6</sub>, b767 181.2°, d420 0.8597, nC20 1.48554, nD20 1.48988, nF20 1.49928, was obtained in 50% yield), and 35% 2-phenylthiophene, b3 80-105° (crude), pure, m. 34.0-4.5°, b760 256.1°, d435 1.1215, nC35 1.6228, nD35 1.6320, nF35 1.6553 (from 85% EtOH); HgCl<sub>2</sub> complex, m. 235-6° (decomposition). PhCH<sub>2</sub>MgCl and allyl bromide gave 58.4% 1-phenyl-3-butene, b763 176-8° (crude), pure, b763.5 177.5°, d420 0.8834, nC20 1.50344, nD20 1.50792, nF20 1.51920. This (24.6 g.) and 19.3 g. S heated 4 h. to 200-70° gave, after repeated distillation and shaking out with Hg, 14.4% 2-phenylthiophene, and a small amount of an unanalyzed product, m. 288-9°, poorly soluble in organic solvents. Repetition at 220-30° for 8 h. gave a small amount of MePh, 2-phenylthiophene, and the high-melting substance above. For best results the hydrocarbon (66 g.) is heated with 48.5 g. S 20 h. at 220-50° (final temperature), then steam-distilled, and the distillate extracted with CHCl<sub>3</sub>, yielding 25.8% 2-phenylthiophene and a small amount of the product, m. 289°. 1-Phenyl-1,3-butadiene [35% by dehydration of PhCH:CHCH(OH)Me by distillation with iodine], b.67-78° (cis-trans mixture), separated by distillation into the trans-isomer, b4 69.2°, d420 0.9338, nD20 1.60852, and the cis-isomer, b3 76.9°, d420 0.9334, nD20 1.60948; heating with S (190° initially, when a spontaneous reaction raises the temperature to 250°) 1 h. at 225° gave 8.3% 2-phenylthiophene and some phenylbutadiene polymers. The diene reduced by Na-EtOH gave 1-phenyl-2-butene, b758 177-8°, d420 0.8861, nC20 1.50779, nC20 1.50328, nF20 1.51901, which (11.9 g.) with 8.6 g. S after 6 h. at 212-17° gave 15.3% crude 2-phenylthiophene. This (5.1%) also resulted from BuPh and S after 35 h. at 195-200°.

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BIPHENYL? OR PHENYL?))  
L2 226 SEA ABB=ON PLU=ON POLYMER?(S) ((THIOALKYL OR THIOMETHYL OR  
THIOBUTYL OR PHENYLTHIO?) (2A) (THIOPHEN? OR BIPHENYL? OR  
PHENYL?))  
L3 63 SEA ABB=ON PLU=ON POLYMER?(8A) ((THIOALKYL OR THIOMETHYL OR  
THIOBUTYL OR PHENYLTHIO?) (2A) (THIOPHEN? OR BIPHENYL? OR  
PHENYL?))  
D L3 1-20 IBIB ABS  
D L3 21-40 IBIB ABS  
D L3 41-63 IBIB ABS

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FILE USPATFULL  
FILE COVERS 1971 TO PATENT PUBLICATION DATE: 13 Dec 2007 (20071213/PD)  
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HIGHEST GRANTED PATENT NUMBER: US2007271888  
HIGHEST APPLICATION PUBLICATION NUMBER: US2007289036  
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DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

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<input type="checkbox"/>	L5	((polymer OR polymerize OR polymerise) AND (thioalkyl OR thiomethyl OR thiobutyl OR phenylthiomethyl) near2 (thiophene OR biphenyl OR phenyl)).clm.	5
		<i>DB=PGPB,USPT; PLUR=YES; OP=OR</i>	
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<input type="checkbox"/>	L3	(525/410 )![CCLS]	356
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<input type="checkbox"/>	L1	(528/374 )![CCLS]	613

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